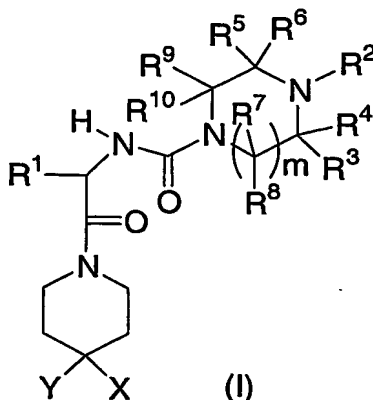


**WHAT IS CLAIMED IS:**

1. A compound of structural formula I:



- 5 or a pharmaceutically acceptable salt thereof; wherein  
m is 1 or 2;  
each p is independently 0, 1, or 2;  
each n is independently 0, 1, or 2;

- 10 R<sup>1</sup> is selected from the group consisting of  
hydrogen,  
C<sub>1-8</sub> alkyl,  
(CHR<sup>12</sup>)<sub>n</sub>-C<sub>3-6</sub> cycloalkyl,  
(CHR<sup>12</sup>)<sub>n</sub>-O(CHR<sup>12</sup>)aryl,  
15 (CHR<sup>12</sup>)<sub>n</sub>-aryl, and  
(CHR<sup>12</sup>)<sub>n</sub>-heteroaryl;

in which aryl and heteroaryl are unsubstituted or substituted with one to three groups independently selected from R<sup>11</sup>; and alkyl and cycloalkyl are unsubstituted or substituted with one to three groups independently selected from R<sup>11</sup> and oxo;

- 20 R<sup>3</sup>, R<sup>4</sup>, R<sup>5</sup>, R<sup>6</sup>, R<sup>7</sup>, R<sup>8</sup>, R<sup>9</sup>, and R<sup>10</sup> are each independently selected from the group consisting of
- hydrogen,  
C<sub>1-8</sub> alkyl,  
25 (CH<sub>2</sub>)<sub>n</sub>-aryl,  
(CH<sub>2</sub>)<sub>n</sub>C<sub>3-6</sub> cycloalkyl,

(CH<sub>2</sub>)<sub>n</sub>-heteroaryl, and

(CH<sub>2</sub>)<sub>n</sub>-heterocyclyl;

in which aryl and heteroaryl are unsubstituted or substituted with one to three groups independently selected from R<sup>11</sup>; and alkyl, cycloalkyl, and heterocyclyl are unsubstituted or substituted with one to three groups independently selected from R<sup>11</sup> and oxo;  
or R<sup>3</sup> and R<sup>5</sup> and the carbon atoms to which they are attached form a 5- to 7-membered ring;  
or R<sup>3</sup> and R<sup>9</sup> and the carbon atoms to which they are attached form a 5- to 7-membered ring;  
or R<sup>5</sup> and R<sup>7</sup> and the carbon atoms to which they are attached form a 5- to 7-membered ring;  
or R<sup>7</sup> and R<sup>9</sup> and the carbon atoms to which they are attached form a 5- to 7-membered ring;

R<sup>2</sup> is selected from the group consisting of

hydrogen,

C<sub>2-6</sub> alkenyl,

C<sub>1-8</sub> alkyl,

(CH<sub>2</sub>)<sub>n</sub>-aryl,

(CH<sub>2</sub>)<sub>n</sub>C<sub>3-6</sub> cycloalkyl,

(CH<sub>2</sub>)<sub>n</sub>-heteroaryl,

(CH<sub>2</sub>)<sub>n</sub>-heterocyclyl,

(CH<sub>2</sub>)<sub>1-2</sub>OR<sup>12</sup>,

(CH<sub>2</sub>)<sub>1-2</sub>CO<sub>2</sub>R<sup>12</sup>,

(CH<sub>2</sub>)<sub>1-2</sub>CONR<sup>12</sup>R<sup>12</sup>,

CH<sub>2</sub>C≡CH, and

CH<sub>2</sub>CHF<sub>2</sub>;

in which aryl and heteroaryl are unsubstituted or substituted with one to three groups independently selected from R<sup>11</sup>; and alkyl, cycloalkyl, and heterocyclyl are unsubstituted or substituted with one to three groups independently selected from R<sup>11</sup> and oxo;  
or R<sup>2</sup> and R<sup>3</sup> and the carbon atoms to which they are attached form a 5- to 7-membered ring;  
or R<sup>3</sup> and R<sup>4</sup> and the carbon atom to which they are attached form a 3- to 6-membered spirocyclic ring;

R<sup>11</sup> is selected from the group consisting of

hydrogen,

C<sub>1-6</sub> alkyl,

(CH<sub>2</sub>)<sub>n</sub>-phenyl,

(CH<sub>2</sub>)<sub>n</sub>-naphthyl,

(CH<sub>2</sub>)<sub>n</sub>-heteroaryl,  
 (CH<sub>2</sub>)<sub>n</sub>-heterocyclyl,  
 (CH<sub>2</sub>)<sub>n</sub>C<sub>3-7</sub> cycloalkyl,  
 halogen,  
 5 OR<sub>12</sub>,  
 (CH<sub>2</sub>)<sub>n</sub>N(R<sub>12</sub>)<sub>2</sub>,  
 (CH<sub>2</sub>)<sub>n</sub>C≡N,  
 (CH<sub>2</sub>)<sub>n</sub>CO<sub>2</sub>R<sub>12</sub>,  
 NO<sub>2</sub>,  
 10 (CH<sub>2</sub>)<sub>n</sub>NR<sub>12</sub>SO<sub>2</sub>R<sub>12</sub>,  
 (CH<sub>2</sub>)<sub>n</sub>SO<sub>2</sub>N(R<sub>12</sub>)<sub>2</sub>,  
 (CH<sub>2</sub>)<sub>n</sub>S(O)<sub>p</sub>R<sub>12</sub>,  
 (CH<sub>2</sub>)<sub>n</sub>NR<sub>12</sub>C(O)N(R<sub>12</sub>)<sub>2</sub>,  
 (CH<sub>2</sub>)<sub>n</sub>C(O)N(R<sub>12</sub>)<sub>2</sub>,  
 15 (CH<sub>2</sub>)<sub>n</sub>NR<sub>12</sub>C(O)R<sub>12</sub>,  
 (CH<sub>2</sub>)<sub>n</sub>NR<sub>12</sub>CO<sub>2</sub>R<sub>12</sub>,  
 O(CH<sub>2</sub>)<sub>n</sub>C(O)N(R<sub>12</sub>)<sub>2</sub>,  
 CF<sub>3</sub>,  
 CH<sub>2</sub>CF<sub>3</sub>,  
 20 OCF<sub>3</sub>, and  
 OCH<sub>2</sub>CF<sub>3</sub>;

wherein phenyl, naphthyl, heteroaryl, cycloalkyl, and heterocyclyl are unsubstituted or substituted with one to three substituents independently selected from halogen, hydroxy, C<sub>1-4</sub> alkyl, trifluoromethyl, and C<sub>1-4</sub> alkoxy; and wherein any methylene (CH<sub>2</sub>) carbon atom in R<sub>11</sub> is unsubstituted or substituted with one to two groups independently selected from halogen, hydroxy, and C<sub>1-4</sub> alkyl; or two substituents when on the same methylene (CH<sub>2</sub>) carbon atom are taken together with the carbon atom to which they are attached to form a cyclopropyl group;

each R<sub>12</sub> is independently selected from the group consisting of  
 30 hydrogen,  
 C<sub>1-8</sub> alkyl,  
 (CH<sub>2</sub>)<sub>n</sub>-phenyl,  
 (CH<sub>2</sub>)<sub>n</sub>-naphthyl,  
 (CH<sub>2</sub>)<sub>n</sub>-heteroaryl, and  
 35 (CH<sub>2</sub>)<sub>n</sub>C<sub>3-7</sub> cycloalkyl;

wherein any methylene (CH<sub>2</sub>) carbon atom in R<sup>12</sup> is unsubstituted or substituted with one to two groups independently selected from halogen, hydroxy, and C<sub>1-4</sub> alkyl; or two R<sup>12</sup> groups together with the atom to which they are attached form a 5- to 8-membered mono- or bicyclic ring system optionally containing an additional heteroatom selected from O, S, and NC<sub>1-4</sub> alkyl;

each R<sup>13</sup> is independently selected from the group consisting of

hydrogen,  
C<sub>1-8</sub> alkyl,  
(CH<sub>2</sub>)<sub>n</sub>-aryl,  
(CH<sub>2</sub>)<sub>n</sub>-heteroaryl,  
(CH<sub>2</sub>)<sub>n</sub>-heterocyclyl, and  
(CH<sub>2</sub>)<sub>n</sub>C<sub>3-7</sub> cycloalkyl;

wherein alkyl, aryl, heteroaryl, heterocyclyl, and cycloalkyl are unsubstituted or substituted with one to three groups independently selected from halogen, hydroxy, C<sub>1-3</sub> alkoxy, C<sub>1-3</sub> alkylthio, carboxy, C<sub>1-4</sub> alkyloxycarbonyl, amino, C<sub>1-4</sub> alkylamino, and di(C<sub>1-4</sub> alkylamino);

or two R<sup>13</sup> groups together with the atoms to which they are attached form a 5- to 8-membered mono- or bi-cyclic ring system optionally containing an additional heteroatom selected from O, S, NR<sup>12</sup>, NBoc, and NCbz;

X is selected from the group consisting of

C<sub>1-8</sub> alkyl,  
(CH<sub>2</sub>)<sub>n</sub>C<sub>3-8</sub> cycloalkyl,  
(CH<sub>2</sub>)<sub>n</sub>-phenyl,  
(CH<sub>2</sub>)<sub>n</sub>-naphthyl,  
(CH<sub>2</sub>)<sub>n</sub>-heteroaryl,  
(CH<sub>2</sub>)<sub>n</sub>heterocyclyl,  
(CH<sub>2</sub>)<sub>n</sub>C≡N,  
(CH<sub>2</sub>)<sub>n</sub>CON(R<sup>13</sup>R<sup>13</sup>),  
(CH<sub>2</sub>)<sub>n</sub>CO<sub>2</sub>R<sup>13</sup>,  
(CH<sub>2</sub>)<sub>n</sub>COR<sup>13</sup>,  
(CH<sub>2</sub>)<sub>n</sub>NR<sup>13</sup>C(O)R<sup>13</sup>,  
(CH<sub>2</sub>)<sub>n</sub>NR<sup>13</sup>CO<sub>2</sub>R<sup>13</sup>,  
(CH<sub>2</sub>)<sub>n</sub>NR<sup>13</sup>C(O)N(R<sup>13</sup>)<sub>2</sub>,  
(CH<sub>2</sub>)<sub>n</sub>NR<sup>13</sup>SO<sub>2</sub>R<sup>13</sup>,

$(\text{CH}_2)_n\text{S}(\text{O})_p\text{R}^{13}$ ,  
 $(\text{CH}_2)_n\text{SO}_2\text{N}(\text{R}^{13})(\text{R}^{13})$ ,  
 $(\text{CH}_2)_n\text{OR}^{13}$ ,  
 $(\text{CH}_2)_n\text{OC}(\text{O})\text{R}^{13}$ ,  
 $(\text{CH}_2)_n\text{OC}(\text{O})\text{OR}^{13}$ ,  
 $(\text{CH}_2)_n\text{OC}(\text{O})\text{N}(\text{R}^{13})_2$ ,  
 $(\text{CH}_2)_n\text{N}(\text{R}^{13})(\text{R}^{13})$ , and  
 $(\text{CH}_2)_n\text{NR}^{13}\text{SO}_2\text{N}(\text{R}^{13})(\text{R}^{13})$ ;

5  
 10 wherein phenyl, naphthyl, and heteroaryl are unsubstituted or substituted with one to three groups independently selected from  $\text{R}^{11}$ ; alkyl, cycloalkyl, and heterocyclyl are unsubstituted or substituted with one to three groups independently selected from  $\text{R}^{11}$  and oxo; and wherein any methylene ( $\text{CH}_2$ ) carbon atom in X is unsubstituted or substituted with one to two groups independently selected from halogen, hydroxy, and  $\text{C}_{1-4}$  alkyl; and

15 Y is selected from the group consisting of

hydrogen,  
 $\text{C}_{1-8}$  alkyl,  
 $\text{C}_{2-6}$  alkenyl,  
 $(\text{CH}_2)_n\text{C}_{3-8}$  cycloalkyl,  
 20  $(\text{CH}_2)_n$ -phenyl,  
 $(\text{CH}_2)_n$ -naphthyl,  
 $(\text{CH}_2)_n$ -heteroaryl, and  
 $(\text{CH}_2)_n$ -heterocyclyl;

25 wherein phenyl, naphthyl, and heteroaryl are unsubstituted or substituted with one to three groups independently selected from  $\text{R}^{11}$ ; alkyl, cycloalkyl, and heterocyclyl are unsubstituted or substituted with one to three groups independently selected from  $\text{R}^{11}$  and oxo; and wherein any methylene ( $\text{CH}_2$ ) carbon atom in Y is unsubstituted or substituted with one to two groups independently selected from halogen, hydroxy, and  $\text{C}_{1-4}$  alkyl.

30 2. The compound of Claim 1 wherein  $\text{R}^1$  is  $\text{CHR}^{12}$ -aryl,  $\text{CHR}^{12}\text{OCHR}^{12}$ -aryl, or  $\text{CHR}^{12}$ -heteroaryl wherein aryl and heteroaryl are unsubstituted or substituted with one to two groups independently selected from  $\text{R}^{11}$ .

3. The compound of Claim 2 wherein R<sup>1</sup> is benzyl, unsubstituted or substituted with one or two groups independently selected from halogen, C<sub>1-4</sub> alkyl, C<sub>1-4</sub> alkoxy, CN, CF<sub>3</sub>, and OCF<sub>3</sub>.

4. The compound of Claim 3 wherein R<sup>1</sup> is 4-chlorobenzyl; 4-fluorobenzyl; 3,4-difluorobenzyl; 3,5-difluorobenzyl; 2-cyano-4-fluorobenzyl; or 4-methoxybenzyl.

5. The compound of Claim 1 wherein R<sup>2</sup> is selected from the group consisting of

hydrogen,  
C<sub>1-8</sub> alkyl,  
CH<sub>2</sub>-aryl,  
CH<sub>2</sub>-heteroaryl,  
CH<sub>2</sub>-heterocyclyl,  
CH<sub>2</sub>C<sub>3-6</sub> cycloalkyl,  
CH<sub>2</sub>CO<sub>2</sub>R<sup>12</sup>,  
CH<sub>2</sub>CONR<sup>12</sup>R<sup>12</sup>,  
CH<sub>2</sub>OR<sup>12</sup>,  
CH<sub>2</sub>C≡CH, and  
CH<sub>2</sub>CHF<sub>2</sub>;

wherein aryl and heteroaryl are unsubstituted or substituted with one to three groups independently selected from R<sup>11</sup>; and alkyl, cycloalkyl, and heterocyclyl are unsubstituted or substituted with one to three groups independently selected from R<sup>11</sup> and oxo.

6. The compound of Claim 5 wherein R<sup>2</sup> is hydrogen or C<sub>1-4</sub> alkyl.

7. The compound of Claim 6 wherein R<sup>2</sup> is hydrogen.

8. The compound of Claim 1 wherein X is selected from the group consisting of C<sub>1-6</sub> alkyl, (CH<sub>2</sub>)<sub>n</sub>-phenyl, (CH<sub>2</sub>)<sub>n</sub>-naphthyl, (CH<sub>2</sub>)<sub>n</sub>-heteroaryl, (CH<sub>2</sub>)<sub>n</sub>-heterocyclyl, (CH<sub>2</sub>)<sub>n</sub>C(O)N(R<sup>13</sup>)(R<sup>13</sup>), (CH<sub>2</sub>)<sub>n</sub>CO<sub>2</sub>R<sup>13</sup>, (CH<sub>2</sub>)<sub>n</sub>S(O)<sub>p</sub>R<sup>13</sup>, (CH<sub>2</sub>)<sub>n</sub>OR<sup>13</sup>, (CH<sub>2</sub>)<sub>n</sub>NR<sup>13</sup>C(O)R<sup>13</sup>, and (CH<sub>2</sub>)<sub>n</sub>NR<sup>13</sup>SO<sub>2</sub>R<sup>13</sup>; wherein phenyl, naphthyl, and heteroaryl are unsubstituted or substituted with one to three groups independently selected from R<sup>11</sup>; alkyl and heterocyclyl are unsubstituted or substituted with one to three groups independently selected

from R<sup>11</sup> and oxo; and the (CH<sub>2</sub>)<sub>n</sub> group is unsubstituted or substituted with one to three groups independently selected from R<sup>12</sup>, halogen, S(O)<sub>p</sub>R<sup>12</sup>, N(R<sup>12</sup>)<sub>2</sub>, and OR<sup>12</sup>.

9. The compound of Claim 8 wherein X is selected from the group consisting of C<sub>1-6</sub> alkyl, (CH<sub>2</sub>)<sub>0-1</sub>-phenyl, (CH<sub>2</sub>)<sub>0-1</sub>-heteroaryl, (CH<sub>2</sub>)<sub>0-1</sub>-heterocyclyl, (CH<sub>2</sub>)<sub>0-1</sub>NHC(O)R<sup>13</sup>, (CH<sub>2</sub>)<sub>0-1</sub>CO<sub>2</sub>R<sup>13</sup>, and (CH<sub>2</sub>)<sub>0-1</sub>C(O)N(R<sup>13</sup>)(R<sup>13</sup>); wherein phenyl and heteroaryl are unsubstituted or substituted with one to three groups independently selected from R<sup>11</sup>; and alkyl and heterocyclyl are unsubstituted or substituted with one to three groups independently selected from R<sup>11</sup> and oxo.

10. The compound of Claim 9 wherein heteroaryl is selected from the group consisting of pyridyl, pyrazinyl, pyrimidinyl, triazolyl, tetrazolyl, thiadiazolyl, oxadiazolyl, pyrazolyl, and imidazolyl.

11. The compound of Claim 1 wherein Y is C<sub>1-8</sub> alkyl, (CH<sub>2</sub>)<sub>n</sub>C<sub>3-7</sub> cycloalkyl, (CH<sub>2</sub>)<sub>n</sub>-aryl, (CH<sub>2</sub>)<sub>n</sub>-heterocyclyl, or (CH<sub>2</sub>)<sub>n</sub>-heteroaryl; wherein aryl and heteroaryl are unsubstituted or substituted with one to three groups independently selected from R<sup>11</sup>; and (CH<sub>2</sub>)<sub>n</sub>, alkyl, cycloalkyl, and heterocyclyl are unsubstituted or substituted with one to three groups independently selected from R<sup>11</sup> and oxo.

12. The compound of Claim 11 wherein Y is C<sub>3-6</sub> cycloalkyl or C<sub>1-6</sub> alkyl, wherein alkyl and cycloalkyl are unsubstituted or substituted with one to three groups independently selected from R<sup>11</sup> and oxo.

13. The compound of Claim 12 wherein Y is cyclohexyl or C<sub>1-6</sub> alkyl, wherein the cyclohexyl and alkyl groups are unsubstituted or substituted with one to three groups independently selected from R<sup>11</sup> and oxo.

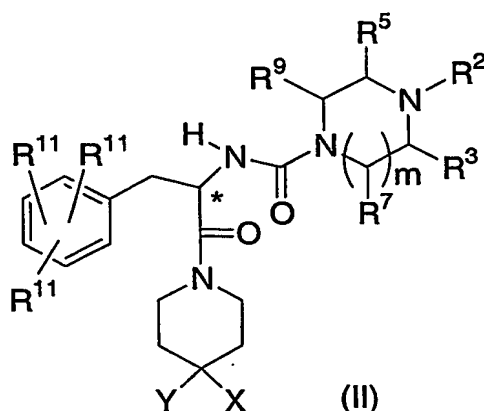
14. The compound of Claim 1 wherein m is 1.

15. The compound of Claim 1 wherein R<sup>3</sup>, R<sup>4</sup>, R<sup>5</sup>, R<sup>6</sup>, R<sup>7</sup>, R<sup>8</sup>, R<sup>9</sup>, and R<sup>10</sup> are each independently hydrogen or C<sub>1-4</sub> alkyl; or R<sup>3</sup> and R<sup>5</sup> and the carbon atoms to which they are attached form a 5- to 7-membered ring; or R<sup>3</sup> and R<sup>9</sup> and the carbon atoms to which they are attached form a 5- to 7-membered ring.

16. The compound of Claim 15 wherein R<sup>3</sup>, R<sup>4</sup>, R<sup>5</sup>, and R<sup>6</sup> are each independently hydrogen or C<sub>1-4</sub> alkyl, and R<sup>7</sup>, R<sup>8</sup>, R<sup>9</sup>, and R<sup>10</sup> are hydrogen.

17. The compound of Claim 16 wherein R<sup>3</sup> and R<sup>5</sup> are each independently hydrogen or C<sub>1-4</sub> alkyl; and R<sup>4</sup> and R<sup>6</sup> are hydrogen.

18. The compound of Claim 1 of structural formula II:



wherein m is 1 or 2;

each R<sup>11</sup> is independently selected from the group consisting of

hydrogen,

halogen,

cyano,

C<sub>1-4</sub> alkyl,

C<sub>1-4</sub> alkoxy,

C<sub>1-4</sub> alkylthio,

trifluoromethyl, and

trifluoromethoxy;

R<sup>2</sup> is hydrogen or C<sub>1-4</sub> alkyl, unsubstituted or substituted with one to three groups independently selected from R<sup>11</sup> and oxo;

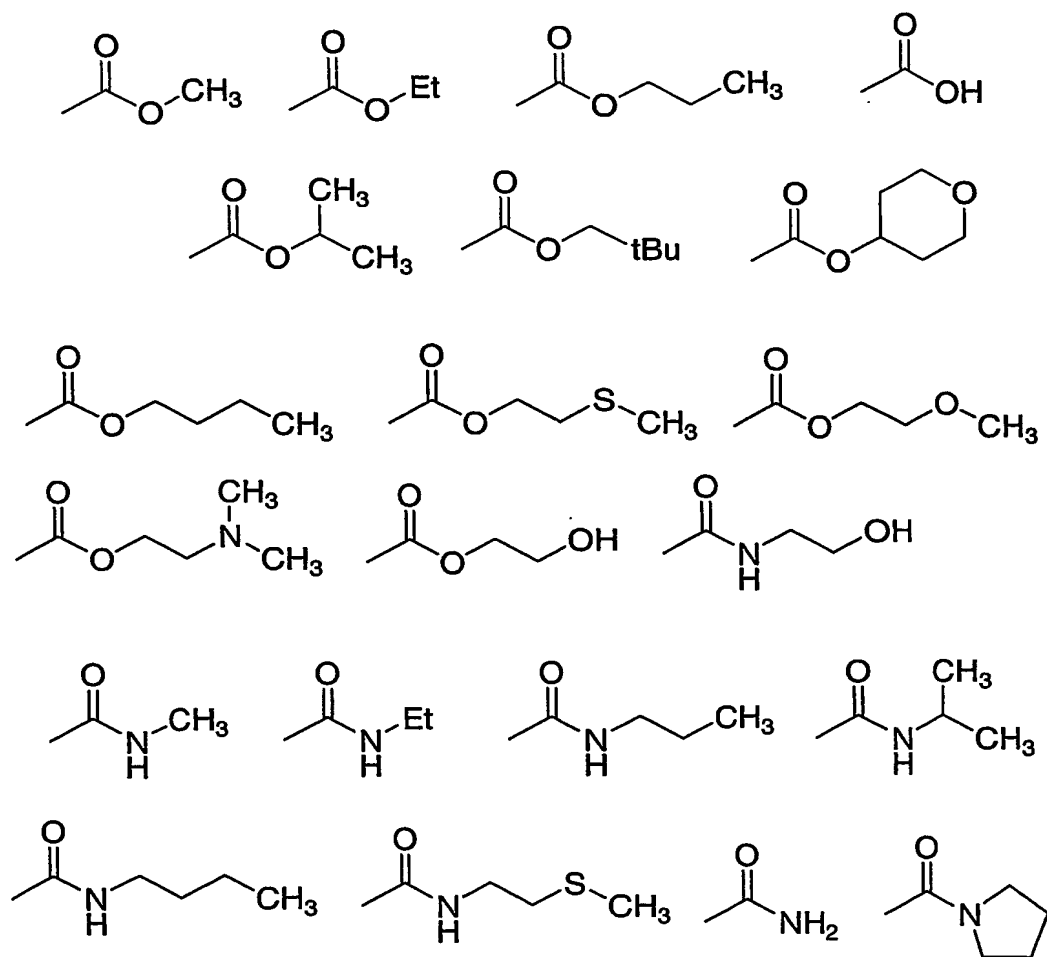
R<sup>3</sup>, R<sup>5</sup>, R<sup>7</sup>, and R<sup>9</sup> are each independently hydrogen or C<sub>1-4</sub> alkyl; or R<sup>3</sup> and R<sup>5</sup> and the carbon atoms to which they are attached form a 5- to 7-membered ring; or R<sup>3</sup> and R<sup>9</sup> and the carbon-

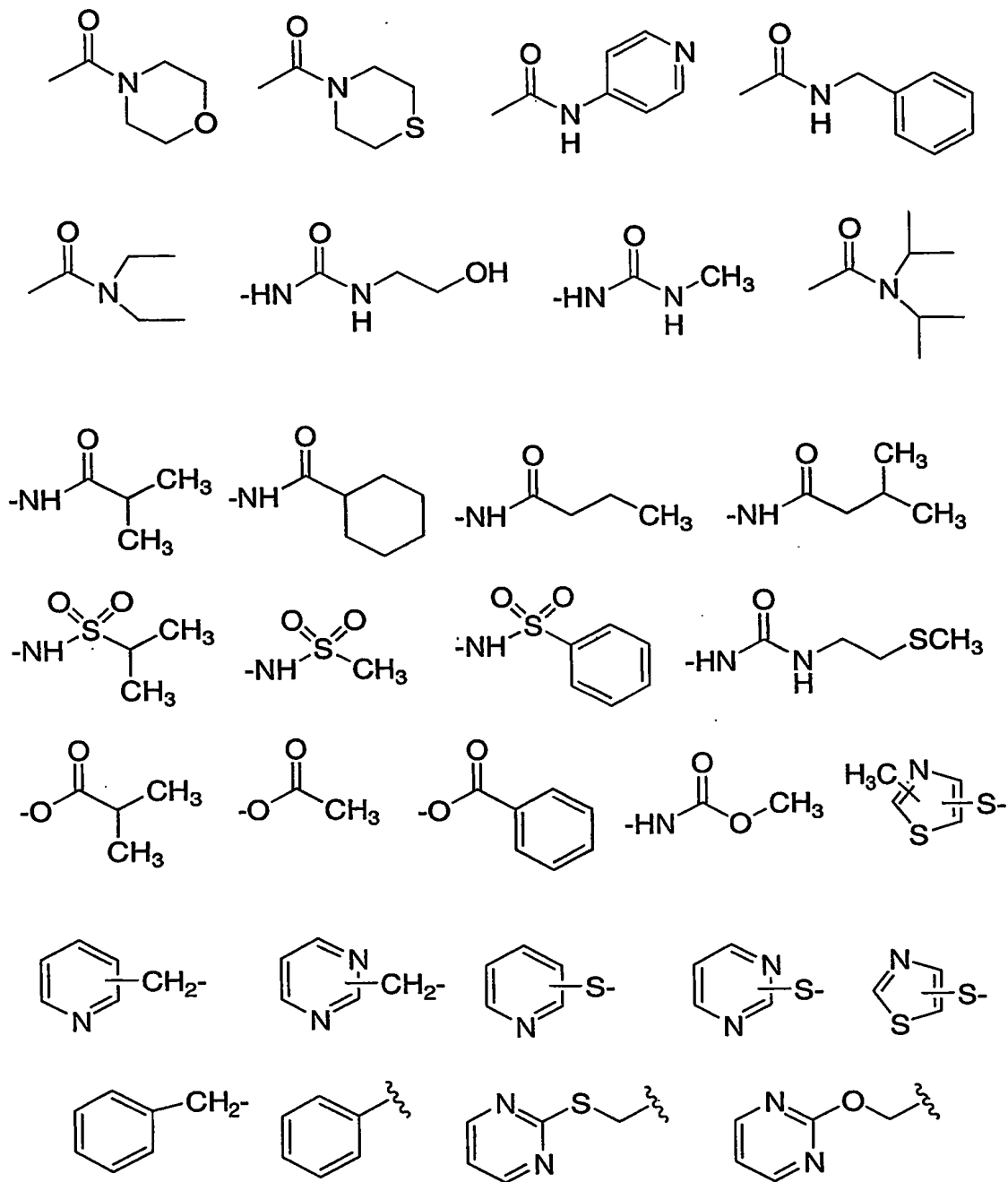
atoms to which they are attached form a 5- to 7-membered ring;

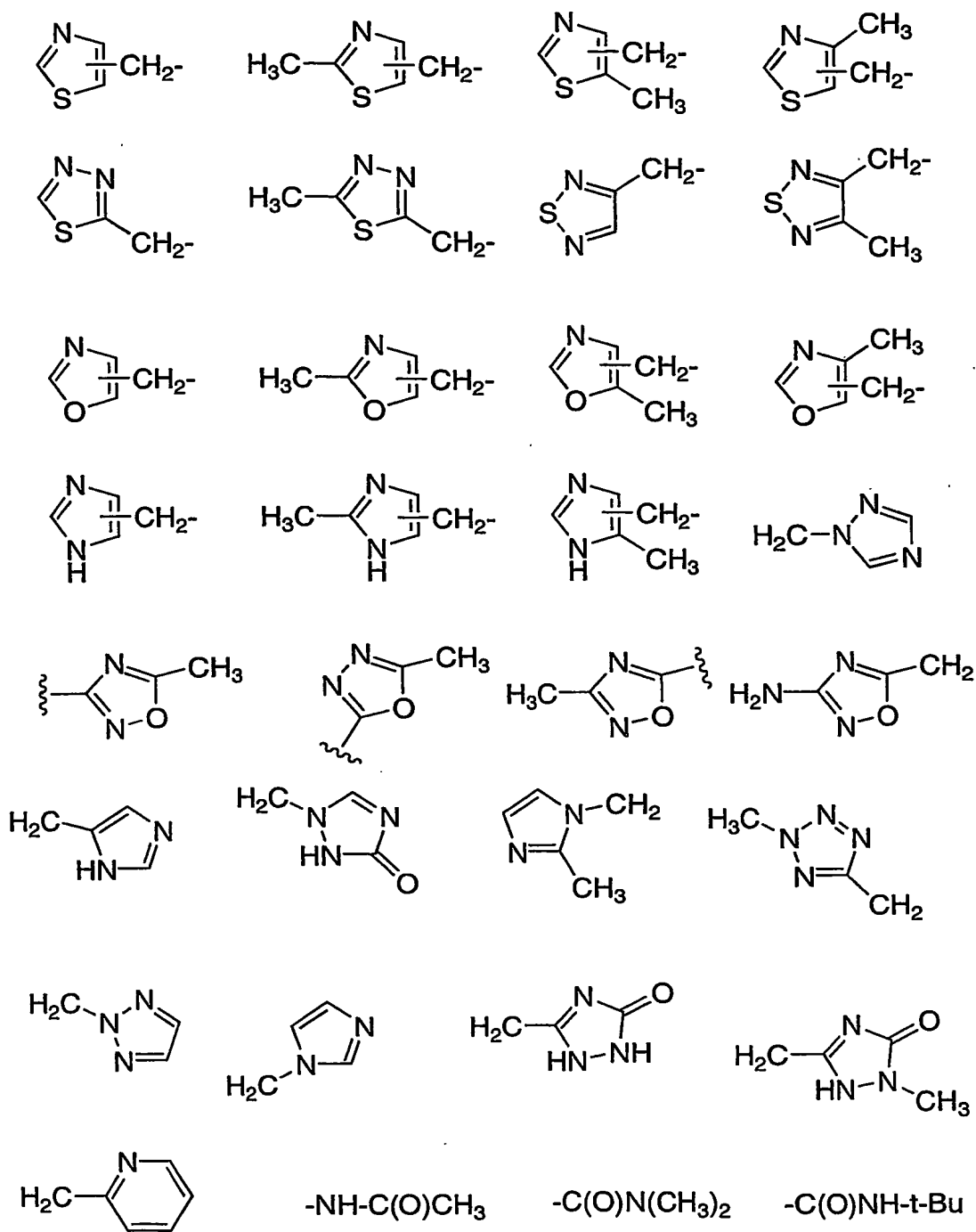


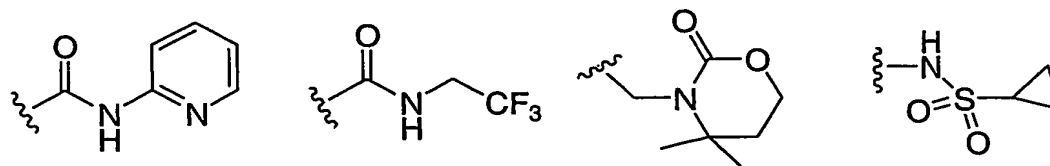
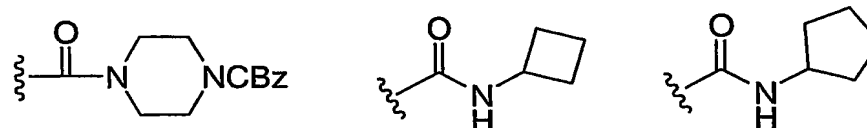
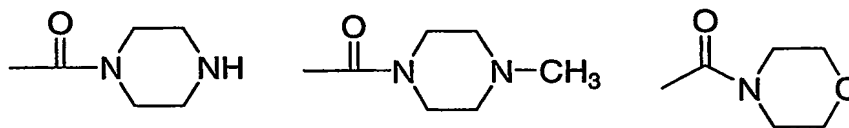
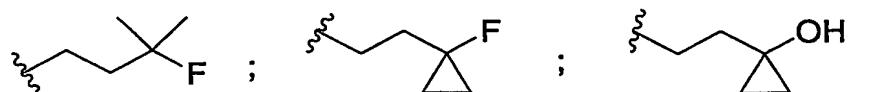
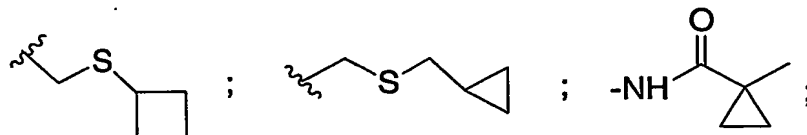
Y is C<sub>5-7</sub> cycloalkyl or C<sub>1-6</sub> alkyl, wherein alkyl and cycloalkyl are unsubstituted or substituted with one to three groups independently selected from R<sup>11</sup> and oxo; and

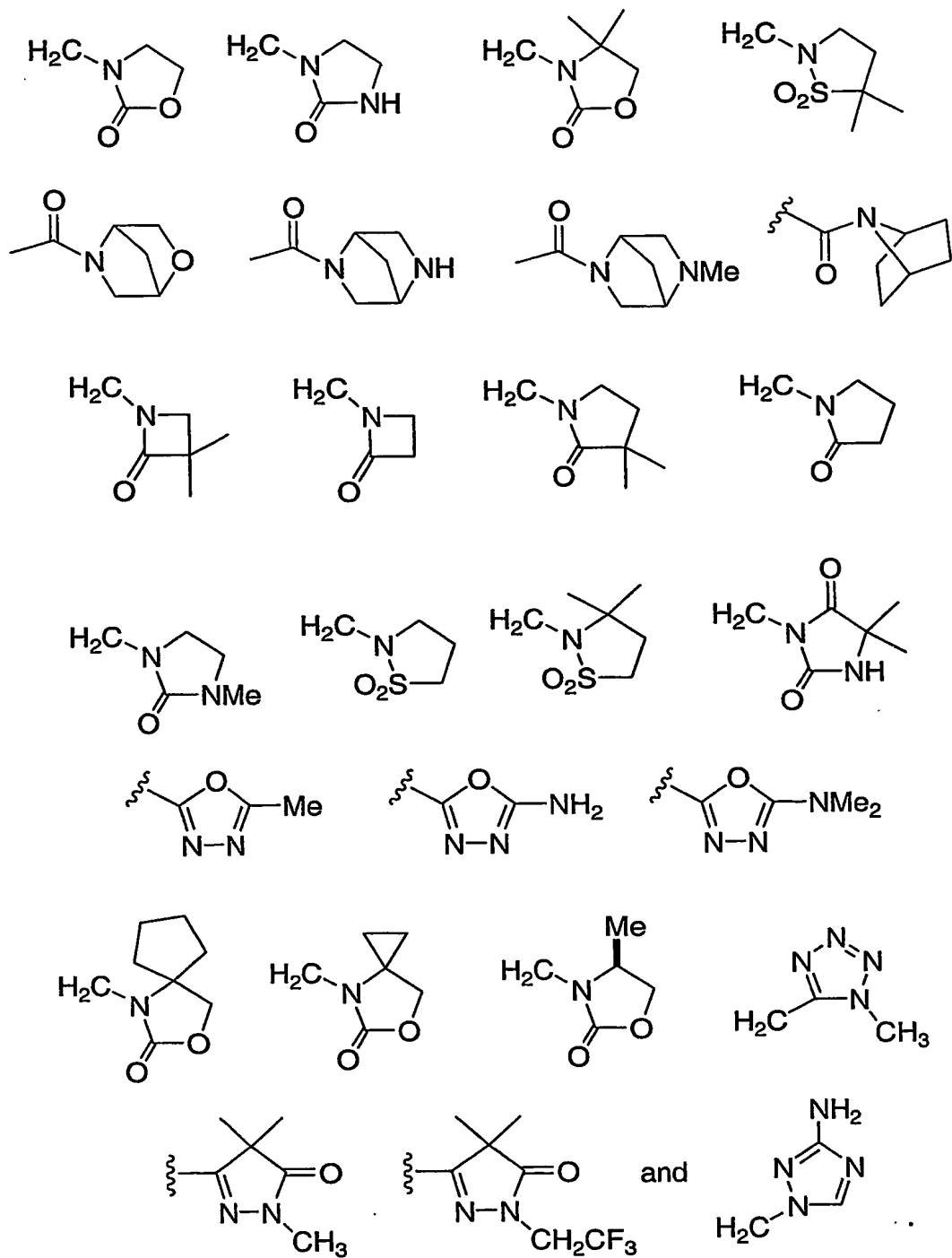
5 X is selected from the group consisting of











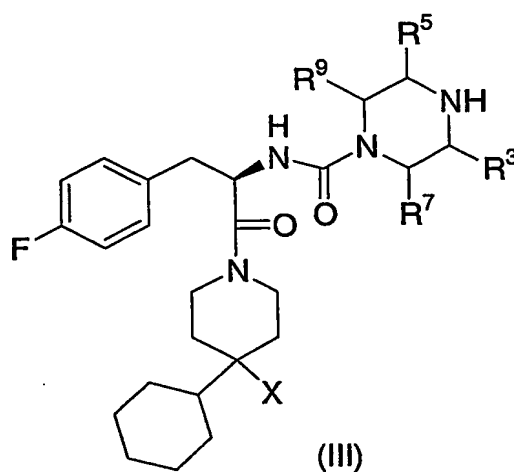
5

19. The compound of Claim 18 wherein the carbon atom marked with \* has the *R* configuration.

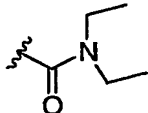
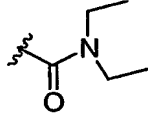
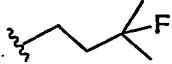

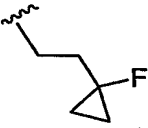
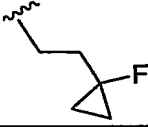
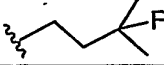
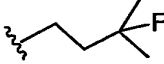
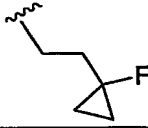
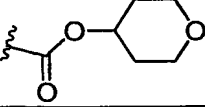
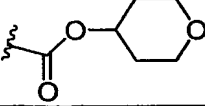
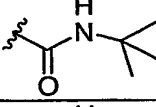
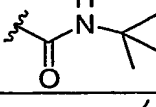
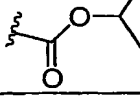
20. The compound of Claim 18 wherein m is 1.

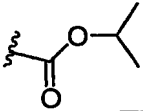
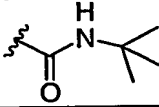
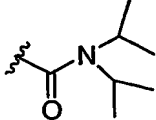
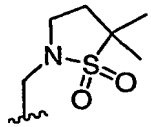
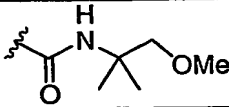
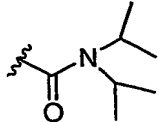
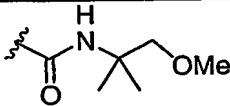
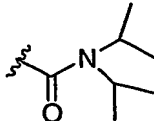
21. The compound of Claim 18 wherein R<sup>3</sup> and R<sup>5</sup> are each independently  
5 hydrogen or C<sub>1-4</sub> alkyl, and R<sup>7</sup> and R<sup>9</sup> are hydrogen.

22. The compound of Claim 19 of structural formula III selected from the  
group consisting of:



<u>R<sup>3</sup></u>	<u>R<sup>5</sup></u>	<u>R<sup>7</sup></u>	<u>R<sup>9</sup></u>	<u>X</u>
Me	Me	H	H	
Me	Me	H	H	
Me	Me	H	H	
Me	Me	H	H	
Me	Me	H	H	

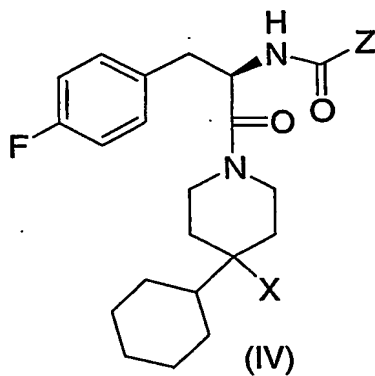
Me	Me	H	H	
Et	Et	H	H	
Et	Et	H	H	
Et	Et	H	H	
Me	Me	H	H	
Et	Et	H	H	
Me	Me	H	H	
Et	Et	H	H	
Et	Et	H	H	
Me	Me	Me	Me	
Et	Et	H	H	
Me	Me	Me	Me	
Et	Et	H	H	
Me	Me	H	H	

Et	Et	H	H	
H	H	H	H	
Me	Me	H	H	
Me	Me	H	H	
Me	Me	H	H	
Et	Et	H	H	
Et	Et	H	H	
Me	Me	Me	Me	

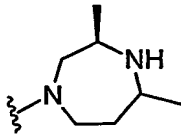
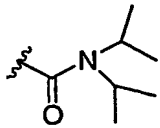
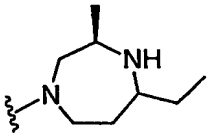
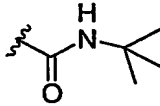
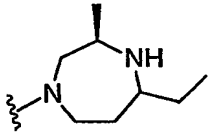
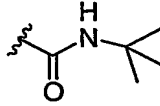
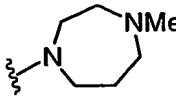
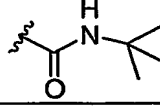
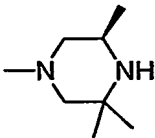
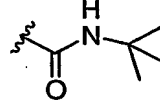
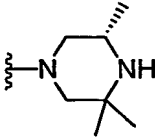
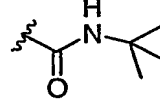
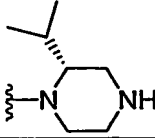
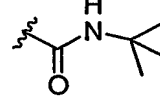
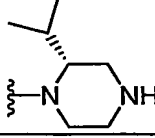
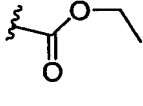
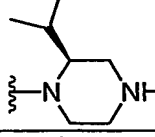
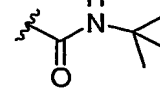
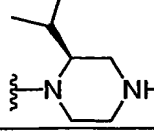
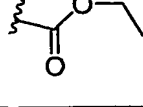
or a pharmaceutically acceptable salt thereof.

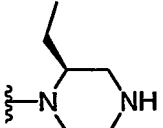
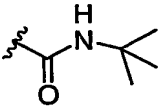
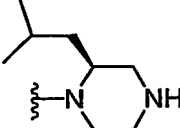
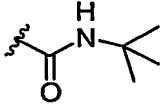
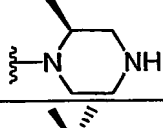
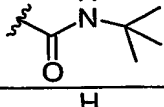
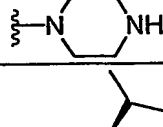
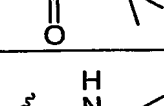
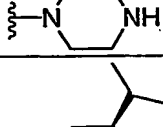
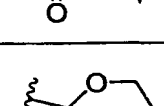
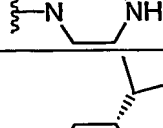
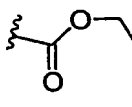
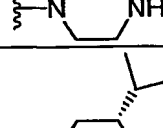
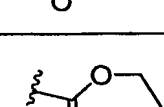
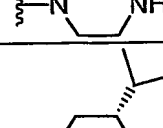
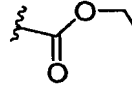
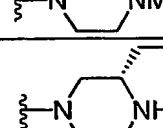
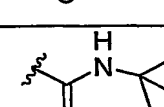
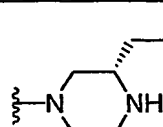
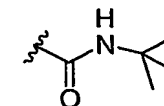
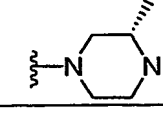
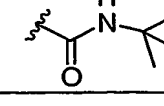
23. The compound of Claim 19 of structural formula IV selected from the  
5 group consisting of:

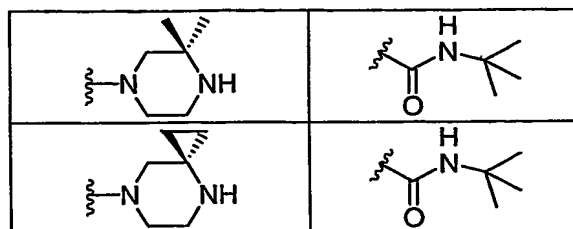




<u>Z</u>	<u>X</u>
 D1	
 D2	
 D1	

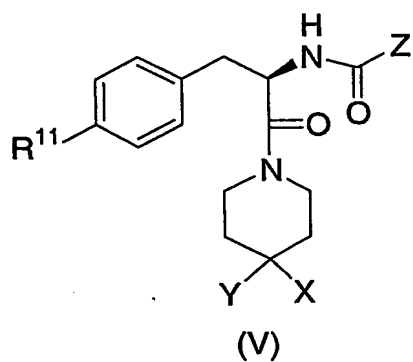
 D2	
 D1	
 D2	
	
	
	
	
	
	
	

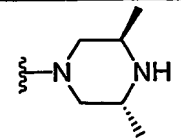
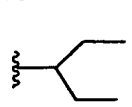
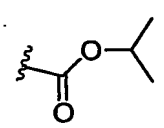
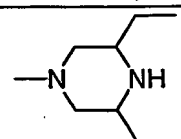
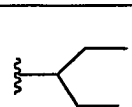
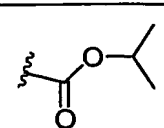
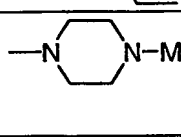
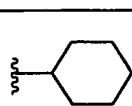
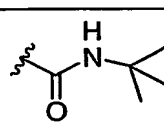
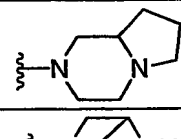
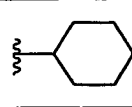
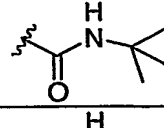
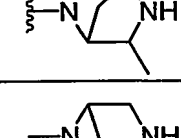
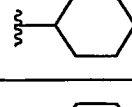
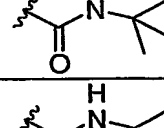
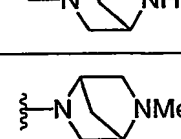
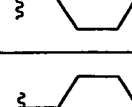
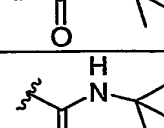
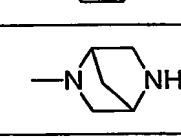
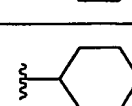
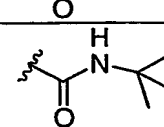
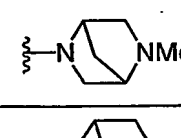
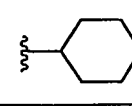
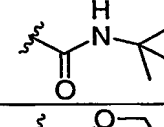
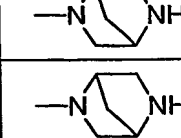
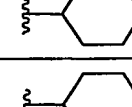
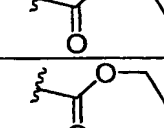
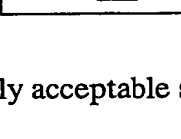
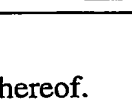
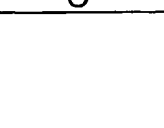


or a pharmaceutically acceptable salt thereof.

24. The compound of Claim 19 of structural formula V selected from the  
5 group consisting of:

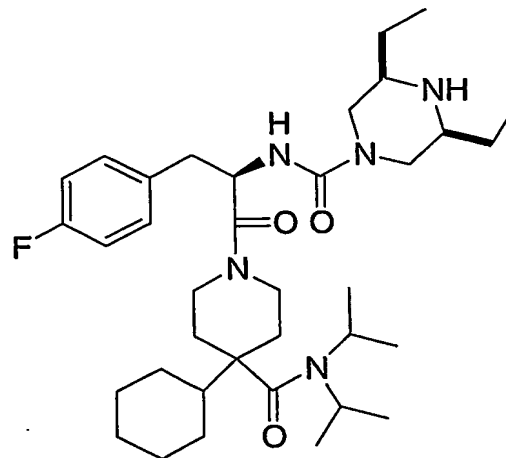
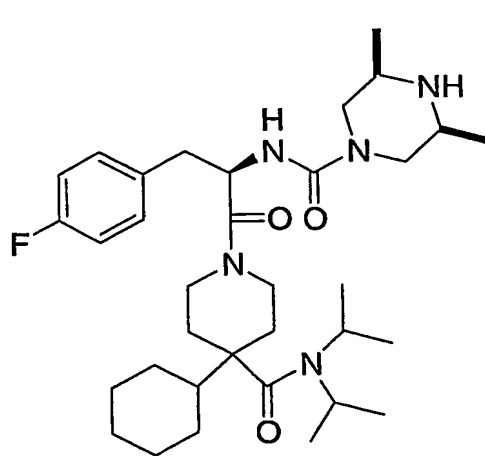
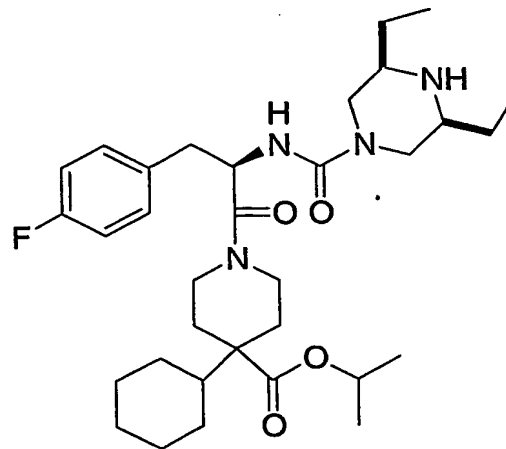
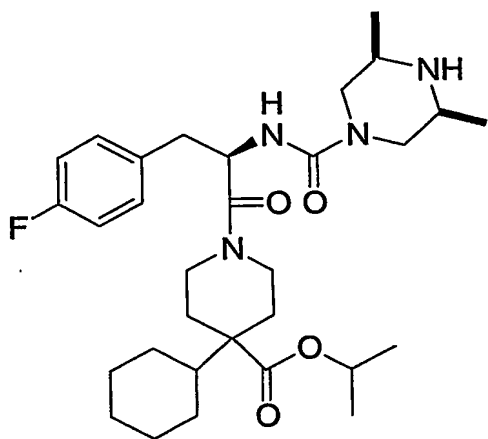
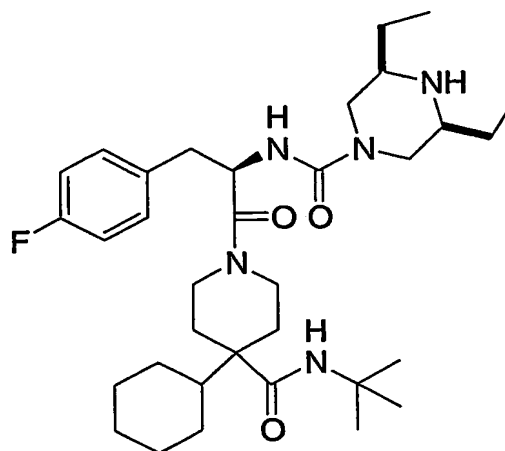
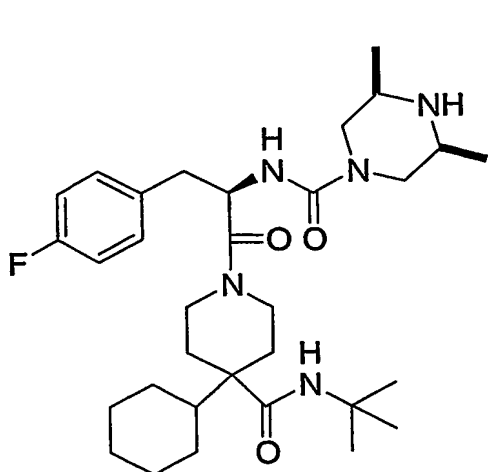


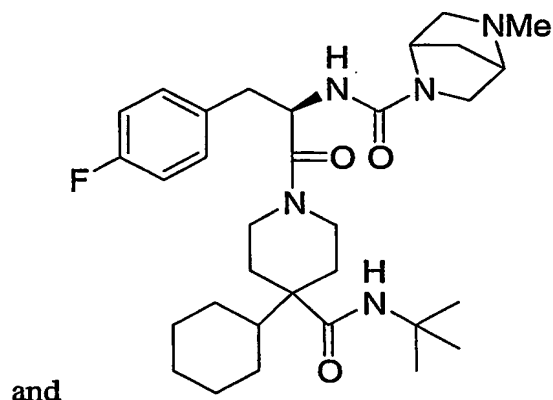
<u>Z</u>	<u>Y</u>	<u>X</u>	<u>R11</u>
			F
			F
			Cl
			Cl

			F
			F
			F
			F
			F
			F
			F
			Cl
			F
			Cl

or a pharmaceutically acceptable salt thereof.

25. The compound of Claim 19 selected from the group consisting of:





or a pharmaceutically acceptable salt thereof.

26. A method for the treatment, control, or prevention of disorders, diseases or conditions responsive to the activation of the melanocortin-4 receptor in a subject in need thereof which comprises administering to the subject a therapeutically or prophylactically effective amount of a compound according to Claim 1.

27. A method for the treatment, control, or prevention of obesity in a subject in need thereof which comprises administering to the subject a therapeutically or prophylactically effective amount of a compound according to Claim 1.

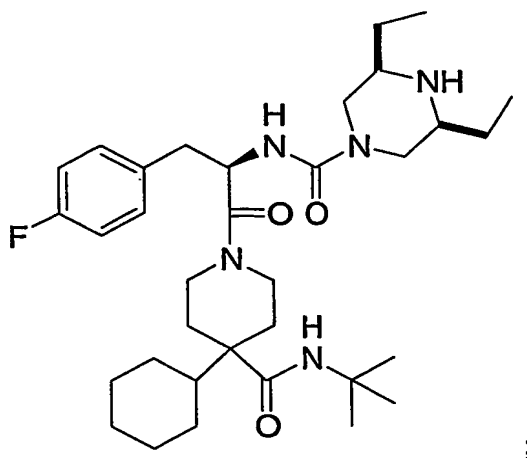
28. A method for the treatment, control, or prevention of diabetes mellitus in a subject in need thereof comprising administering to the subject a therapeutically or prophylactically effective amount of a compound according to Claim 1.

29. A pharmaceutical composition which comprises a compound of Claim 1 and a pharmaceutically acceptable carrier.

30. The pharmaceutical composition of Claim 29 further comprising a second active ingredient selected from the group consisting of an insulin sensitizer, an insulin mimetic, a sulfonylurea, an  $\alpha$ -glucosidase inhibitor, an HMG-CoA reductase inhibitor, an anti-obesity serotonergic agent, a  $\beta$ 3 adrenoreceptor agonist, a neuropeptide Y1 or Y5 antagonist, a pancreatic lipase inhibitor, and a cannabinoid CB<sub>1</sub> receptor antagonist or inverse agonist.

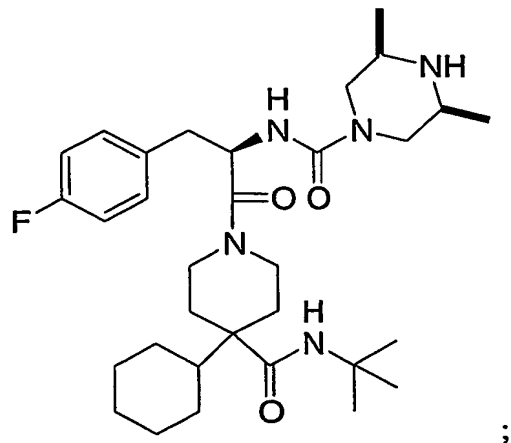
31. A method of treating diabetes or obesity in a subject in need thereof comprising administering to the subject a therapeutically effective amount of a compound of Claim 1 in combination with an insulin sensitizer, an insulin mimetic, a sulfonylurea, an  $\alpha$ -glucosidase inhibitor, an HMG-CoA reductase inhibitor, an anti-obesity serotonergic agent, a  $\beta$ 3 adrenoreceptor agonist, a neuropeptide Y1 or Y5 antagonist, a pancreatic lipase inhibitor, or a cannabinoid CB<sub>1</sub> receptor antagonist or inverse agonist.
- 5

32. The compound of Claim 25 which is:



- 10 or a pharmaceutically acceptable salt thereof.

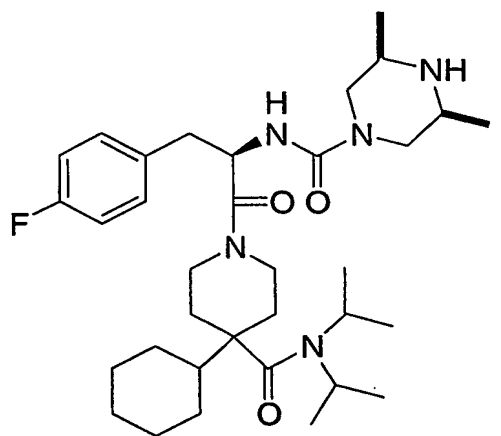
33. The compound of Claim 25 which is:



- or a pharmaceutically acceptable salt thereof.



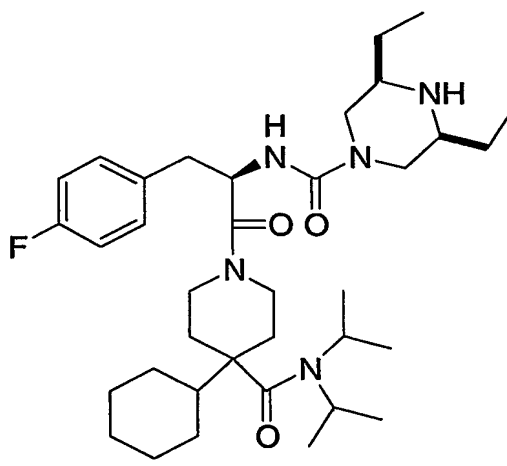
34. The compound of Claim 25 which is:



or a pharmaceutically acceptable salt thereof.

5

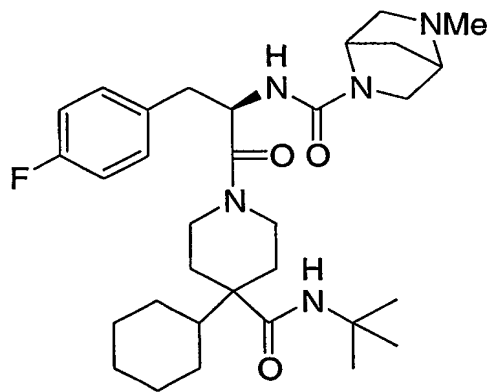
35. The compound of Claim 25 which is:



or a pharmaceutically acceptable salt thereof.

10

36. The compound of Claim 25 which is:



or a pharmaceutically acceptable salt thereof.

37. The compound of Claim 25 wherein the pharmaceutically acceptable salt thereof is the hydrochloric acid salt.

38. The compound of Claim 25 wherein the pharmaceutically acceptable salt thereof is the sulfuric acid salt.

39. The compound of Claim 25 wherein the pharmaceutically acceptable salt thereof is the benzenesulfonic acid salt.

40. A method for the treatment of an obesity-related disorder selected from the group consisting of overeating, binge eating, and bulimia, hypertension, diabetes, elevated plasma insulin concentrations, insulin resistance, dyslipidemias, hyperlipidemia, endometrial, breast, prostate and colon cancer, osteoarthritis, obstructive sleep apnea, cholelithiasis, gallstones, heart disease, abnormal heart rhythms and arrhythmias, myocardial infarction, congestive heart failure, coronary heart disease, sudden death, stroke, polycystic ovary disease, craniopharyngioma, the Prader-Willi Syndrome, Frohlich's syndrome, GH-deficient subjects, normal variant short stature, Turner's syndrome, metabolic syndrome, insulin resistance syndrome, sexual and reproductive dysfunction, infertility, hypogonadism, hirsutism, obesity-related gastro-esophageal reflux, Pickwickian syndrome, cardiovascular disorders, inflammation, systemic inflammation of the vasculature, arteriosclerosis, hypercholesterolemia, hyperuricaemia, lower back pain, gallbladder disease, gout, and kidney cancer, cardiac hypertrophy and left ventricular hypertrophy, in a mammal in need thereof which comprises administering to the

mammal a therapeutically or prophylactically effective amount of a compound according to Claim 1.

41. A method for the prevention of an obesity-related disorder selected from the group consisting of overeating, binge eating, and bulimia, hypertension, diabetes, elevated plasma insulin concentrations, insulin resistance, dyslipidemias, hyperlipidemia, endometrial, breast, prostate and colon cancer, osteoarthritis, obstructive sleep apnea, cholelithiasis, gallstones, heart disease, abnormal heart rhythms and arrhythmias, myocardial infarction, congestive heart failure, coronary heart disease, sudden death, stroke, polycystic ovary disease, craniopharyngioma, the Prader-Willi Syndrome, Frohlich's syndrome, GH-deficient subjects, normal variant short stature, Turner's syndrome, metabolic syndrome, insulin resistance syndrome, sexual and reproductive dysfunction, infertility, hypogonadism, hirsutism, obesity-related gastro-esophageal reflux, Pickwickian syndrome, cardiovascular disorders, inflammation, systemic inflammation of the vasculature, arteriosclerosis, hypercholesterolemia, hyperuricaemia, lower back pain, gallbladder disease, gout, and kidney cancer, cardiac hypertrophy and left ventricular hypertrophy, in a mammal in need thereof which comprises administering to the mammal a therapeutically or prophylactically effective amount of a compound according to Claim 1.

42. The pharmaceutical composition of Claim 29 further comprising a second active ingredient selected from the group consisting of a melanin-concentrating hormone receptor antagonist, a bombesin receptor subtype 3 agonist, a ghrelin receptor antagonist, and a dipeptidyl peptidase IV inhibitor.

43. A method of treating diabetes or obesity in a mammal in need thereof comprising administering to the mammal a therapeutically effective amount of a compound of Claim 1 in combination with a melanin-concentrating hormone receptor antagonist, a bombesin receptor subtype 3 agonist, a ghrelin receptor antagonist or a dipeptidyl peptidase IV inhibitor.

44. The use of a compound according to Claim 1 for the manufacture of a medicament useful for the treatment or prevention of a disease mediated by the melanocortin-4 receptor in a human subject in need thereof.

45. The use according to Claim 43 wherein the disease mediated by the melanocortin-4 receptor is selected from the group consisting of obesity, and diabetes.

46. The use of a compound according to Claim 1 for the manufacture of a  
5 medicament useful for the treatment or prevention of an obesity-related disorder selected from  
the group consisting of overeating, binge eating, and bulimia, hypertension, diabetes, elevated  
plasma insulin concentrations, insulin resistance, dyslipidemias, hyperlipidemia, endometrial,  
breast, prostate and colon cancer, osteoarthritis, obstructive sleep apnea, cholelithiasis,  
gallstones, heart disease, abnormal heart rhythms and arrhythmias, myocardial infarction,  
10 congestive heart failure, coronary heart disease, sudden death, stroke, polycystic ovary disease,  
craniopharyngioma, the Prader-Willi Syndrome, Frohlich's syndrome, GH-deficient subjects,  
normal variant short stature, Turner's syndrome, metabolic syndrome, insulin resistance  
syndrome, sexual and reproductive dysfunction, infertility, hypogonadism, hirsutism, obesity-  
related gastro-esophageal reflux, Pickwickian syndrome, cardiovascular disorders, inflammation,  
15 systemic inflammation of the vasculature, arteriosclerosis, hypercholesterolemia, hyperuricaemia,  
lower back pain, gallbladder disease, gout, and kidney cancer, cardiac hypertrophy and left  
ventricular hypertrophy.